

New and Little Known Fulgorids from the West Indies (Homoptera).

BY F. MUIR.

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From time to time Mr. G. N. Wolcott has forwarded to the writer fulgorids from Porto Rico and other West Indian Islands; some of these he named at the time of their reception, others he placed on one side for future study. Among the latter the following appear to be undescribed, or needing some comment. A study of the male genitalia of the species reported as common to various West Indian Islands and the mainland is very desirable, and is likely to show a higher endemism than has hitherto been evident.

CIXIIDAE.

Cubana tortriciformis sp. nov.

Female. Length, 5 mm.; tegmen, 8 mm.

The base of the vertex not quite so angularly emarginate as in the type. Brown, the carinae of head and thorax lighter brown or yellow, legs light brown, abdomen light brown, slightly infuseate. Tegmen light brown or stramineous, with lighter and darker markings; the darker brown markings are, one from base of costa over first claval vein, a large, irregular V-shape mark with its apex near Mf, and one arm touching the mark over the first claval vein and the other reaching the middle of costa; a small mark across costal cell slightly more distad, a fainter one at base of stigma and continued in a curve to apex of clavus, another subparallel to last starting distad of stigma, where it is broadest, a broader dark mark over apical Sc and R reaching to M, a thin line slightly apical to that; at apex between M3 and 4 a black round mark. The veins dark in dark area and lighter in light area; the middle of the subapical cells semi-hyaline, wings slightly fuscous and opaque, veins brown.

One female from Maneyes P. R., 3000 feet elevation. Acc. No. 29-1924 (G. N. Wolcott).

This is the third species to be placed in this genus, the other two being from Cuba. The genus is near to *Cotylepceps*, but can be recognized from it by the longitudinal median carina on vertex.

Type in the National Museum, Washington.

DERBIDAE.

***Cedusa wolcotti* sp. nov.** Plate XII, Figs. 1, a.

Male. Length, 2 mm.; tegmen, 3.3 mm.

Vertex slightly longer than in type species, a faint carina dividing it from frons; lateral margins of frons straight, subparallel sided or frons slightly broader at apex than at base, a faint median frontal carina; sub-antennal plate large, typical; shoulder keels distinct, but small. Tegmina slightly narrower than type species, apex more rounded, venation with one apical M (M 1c) missing, apical cells shorter.

The anal angle of pygofer produced into a long, narrow process, lateral margins ventrad of process concave; anal segment long, narrow, anus slightly basad of middle, broadest at base gradually narrowed to truncate apex, the apex has the appearance of being cleft in middle and afterwards joined together, in some specimens there is a little hole through the middle near apex; genital styles large, broad, the apex broadly rounded with a small process on outer margin near base, and a broad longitudinal median ridge from base to the inner margin near apex, inner margin slightly convex, entire; the apex of the left style is cleft nearly across and produced into a small spine, the right style being entire at apex and without spine.

Stramineous, slightly darker over apical portion of mesonotum. Tegmina hyaline, slightly opaquely white; clavus, apical cells and Cu area slightly fuscous, a black mark at apex of Cu, smaller one at apices of apical cells; veins same color as membrane. Wings opaquely white, M and A veins brown, others white.

Female. Similar to male. The pregenital plate (seventh sternite) produced from side to middle, sides of produced portion sinuous, apex rounded.

Described from twenty-three males and five females from Yauco, Porto Rico (*G. N. Wolcott*, August 24, 1923; Acc. No. 236), feeding on a palm. Type No. 1135, in Hawaiian Sugar Planters' Experiment Station collection; paratypes in U. S. National Museum, Washington, and *G. N. Wolcott's* collection.

***Dysimia* gen. nov.**

Sc+R+M forming a common stalk on the basal fifth, Sc+R fork a little basad of the middle and level with M fork; Sc cell fairly long and narrow; M with seven apical veins, pectinate or subpectinate, the first or basal sector furcate near base, the second furcate near apex, the third and fourth arising near together at apical cross-veins; the Cu with three veins entering hind margin, Cu fork slightly before apex of clavus, Cu1 forked near apex; clavus closed, claval veins forking on basal third, entering

commissure near apex of clavus. Hind-wing more than half the length of tegmen, anal area well developed with anal veins.

Vertex small, triangular, lateral carinae large, meeting together at apex. Base of frons narrow with lateral carinae touching, gradually widening to apex, lateral carinae large, curved under the antennae, but do not form a subantennal process. Clypeus shorter than frons, rounded. In profile vertex and frons forming a curve. Pronotum angularly emarginate posteriorly, very short in middle, no shoulder carinae or only a very slight indication of any; mesonotum broader than long, without carinae. Antennae shorter than frons, first segment wider than long, length of second segment about twice the width, apex slightly larger than base. Female genital style small, but complete. Hind tibiae with two or three small spines, which are missing in some specimens.

This genus stands between *Symedia* and *Mysidia*, but, as it has only three Cu veins reaching the hind margin, and the sectors of M are not incorporated into the Cu, it must be placed in the Cenchreini. It differs from *Symedia* in having no shoulder keels, the Cu with three branches instead of two, the basal M sector two-branched instead of three, and the second M sector two instead of one branch; wings are also proportionately much larger. In *Dawnaria* Dist. the M is not pectinate and in *Phenice* Cu has two branches, the first M sector two, and the others are simple.

Type *D. maculata*.

***Dysimia maculata* sp. nov.** Plate XII, Figs. 2, a.

Male. Length, 1.5 mm.; tegmen, 3.6 mm.

Stramineous; genae in front of eyes, the middle of mesonotum and basal portion of abdominal tergites fuscous, fuscous over lateral portions of pronotum, a small dark mark on tegulae sometimes forming a distinct spot. Tegmina hyaline, slightly opaque with waxy secretion and very slightly fuscous, especially over apical cross-veins and in apical cells, veins stramineous with fuscous marks; four black spots on tegmen, the largest on Cu₁, a smaller one at base of Cu₁, another in costal cell at base of Se+R fork and a very small one on M basad of first sector. Wings hyaline, veins stramineous with fuscous markings, a round black spot between Cu and A.

Anal segment small, anus near base, lateral edges curved ventrad. Inner margins of genital styles slightly concave on basal half and convex on apical half, outer margin produced angularly in middle, the apex of the angle produced into a thin, curved process.

Female. Length, 1.9 mm.; tegmen, 4 mm.

In color similar to male, the fuscous on tegmen a little darker, and the

abdominal tergites lighter. Hind margin of pregenital plate turbinate or angular with curved sides, reaching nearly to apex of styles.

Described from thirty-five males and twelve females, feeding on two species of *Inga*: *I. vera* and *I. laurina* (G. N. Wolcott, August, 1922, Acc. No. 279-23).

Type in H. S. P. A. Experiment Station collection, Honolulu, No. 1136; paratypes in U. S. National Museum, Washington, and G. N. Wolcott's collection.

DICTYOPHARIDAE.

Parahydriena gen. nov.

Sc+R fork and M fork at cross-veins, M4 appearing as arising from cross-vein, Cu fork considerably basad of these, about one-third from apex of clavus, M1 and 2 fork at apical cross-veins, M with five apical veins, 1, 2, 3, 4, 4 a; a single line of apical cross-veins; claval fork about one-third from base, apex entering commissure near apex, no cross-veins in clavus; Sc+R+M making a short stalk at base. Apical half of vertex in the middle raised into a deep keel which in profile is subangular; frons long, narrow, base half the width of apex, basal third subparallel sided beyond which widening with sides slightly arcuate, widest before apex; lateral margins keeled, two median longitudinal carinae which meet together at apex; clypeus tricarinate. Pronotum short in middle with a median carina, wider at sides with a single, curved carina behind eyes; mesonotum tricarinate, carinae straight, laterals slightly diverging posteriorly, posterior angle divided off by a slight depression, but not by a suture or line. Front legs simple, not expanded, front tibiae and femora subequal in length, without spines; hind tibiae with three spines on apical half.

This genus approaches *Hydriena* Melichar in having two medio-frontal carinae, but the shape and nature of the elevated portion of the vertex appear to differ, and the front legs are not exceptionally long.

Type *P. hyalina*.

Parahydriena hyalina sp. nov. Plate XII, Figs. 3, a, b, c.

Female. Length, 4.2 mm.; tegmen, 5.7 mm.

Yellow or light stramineous; carinae of head, sides of clypeus, lateral portion of cephalic projection and sides of head below it dark, also dark over carinae of thorax, a thin line in middle of lateral portions of pronotum, a dark mark over coxae and pleura of thorax; the apical half of abdominal tergites and fifth, sixth, and seventh sternites dark. Tegmina and wings clear hyaline, veins light brown.

Anal segment longer than broad, in outline basal half slightly concave, apical half slightly convex, apex slightly arcuately emarginate; anus in apical half. Posterior genital styles laterally flattened, triangular, excavate in middle, apex with a number of spines curved inward; median and anterior styles covered by posterior styles.

One female specimen from Lares, Porto Rico (*G. N. Wolcott*, June 14, 1921, Acc. No. 130, 1921).

Type in U. S. National Museum, Washington.

ISSIDAE.

Colpoptera brunneus sp. nov. Plate XII, Figs. 4, a, b, c, d.

Male. Length, 3.7 mm.; tegmen, 4.6 mm.

Dark brown, lighter over genae, lighter spots in middle of frons, over carinae of head and thorax, legs lighter. Tegmina dark brown, light brown over costal area and cell, and a few small, light marks in clavus; veins same color as membrane except apical veins which are light, a light mark at stigma and at apex of clavus. Wings fuscous, slightly lighter at base, veins dark. The tegmina are generally covered with a light powdery secretion.

In lateral view lateral margins of pygofer straight or slightly concave, anal angle rounded, not produced. Anal segment fairly large, anus in middle, apex rounded. Genital styles large, subtriangular, two ridges running across apical half, outer margin irregularly sinuate. Periandrium forming a tube, deeply and narrowly emarginate, or cleft, on ventro-apical margin, with a long, thin process arising from the bottom of the emargination (Figs. 4, a), and from each side of the emargination arises a bifurcate, spine-like process; the penis is large, membranous or but slightly chitinized, with a pair of curved spines about middle of ventral aspect.

Female. Similar in size and color to the male. The tegmina of this species has the costal vein leaving the costal margin one-fourth from the base and forming a narrow costal area without cross-veins; the Sc and R simple, and forming a short stalk; M bifurcate about middle, M3+4 joining R for a short distance; Cu forking near apex. In the hind wings there is an emargination at the apex of Cu, as well as one in middle of anal area; no granules on the clavus. Vertex much wider than long, truncate at apex, slightly concave at base. Basal margin of pronotum widely angularly emarginate, lateral earinae following hind margin of eyes.

Described from three males and two females from Utuado, P. R. (*G. N. Wolcott*, November, 1921, Acc. No. 475), one male and two females (type locality), one male from Toa Alta (*G. N. Wolcott*, April 21, 1921, Acc. No. 105, 1921), and one male

from Cicales, P. R. (*G. N. Wolcott*, March 24, 1920, Acc. No. 65, 1921).

Type in H. S. P. A. Experiment Station, Honolulu; paratypes in U. S. National Museum, Washington, and *G. N. Wolcott's* collection.

***Colpoptera maculifrons* sp. nov.**

Male. Length, 3.8 mm.; tegmen, 5.4 mm.

Light brown; slightly darker at base on lateral portion of frons, a series of seven or eight lighter spots curving from the outer angles of base to near apex in the darker portion of frons; pronotum slightly mottled with darker marks; mesonotum considerably darker. Tegmina light brown, slightly darker in middle, veins same color as membrane except in middle, where the Sc, R, M, and Cu from one-third from base to near nodal line are dark brown or black. Wings brown with darker veins.

Anal segment long, narrow, anus at base where it is broadest, gradually narrowing to acute apex. Genital styles somewhat similar to former species, but the apex (corresponding to x in Fig. 4) is produced into a spine with its apex bifurcate and pick-shape.

Vertex considerably wider than long, apex very slightly arcuate, base slightly, roundly emarginate. In this species there is a very slight sign of transverse veins in the costal area.

Described from one male from Rio Piedras, P. R. (*R. T. Cotton*, 2, 10, 1917).

Type in U. S. National Museum, Washington.

The genus *Colpoptera* Burmeister is difficult to place; it has been placed in the Issidae, Ricaniidae, and Flatidae by different workers. The absence of any sign of granules on the clavus should exclude it from the Flatidae, and the male genitalia are not typical of that family. The absence of a distinct costal area with distinct cross-veins should also exclude it from the Ricaniidae, and the eyes nearly touch the tegulae. If it should be placed in the Ricaniidae it would come near to *Bladina*, in which the costal area is obscure. Personally, the writer prefers to place it in the Issidae until such time as the morphology of that family has been more thoroughly worked, and it should go into the Thioniini.

ACANALONIIDAE.

Acanalonia brevifrons sp. nov. Plate XII, Figs. 5, a, b.

Female. Length, 6.9 mm.; tegmen, 8.6 mm.

Vertex wider than the length in middle, apex widely angular or subangular; frons much wider than long. No costal area; Sc and R arising from the same spot on basal cell, Mf near base, fork of M3+4 very near to Mf, Cu without a fork. Anal segment sublanceolate, anus in middle; posterior genital styles large, triangular, the apex swollen and roughened, but not bearing teeth.

Green; slightly brownish over vertex, more so on legs; costa light; apical margin from the apex of Sc to apex of clavus reddish brown with small light marks, slightly reddish along second claval and hind margin. Wings slightly greenish with green veins, slightly brownish over anal area.

Described from one male from Pt. Cangrojos P. R. (G. N. Holcott, June 24, 1920, Acc. No. 234).

Type in U. S. National Museum, Washington.

In Melichar's latest classification of this family* this species would come into *Amphiscepa* Germar. But Van Duzee has pointed out that the type of this genus is an Issid and it is not available for Acanaloniidae. If Melichar's genus is maintained, then a new name must be given it.

FLATIDAE.

Tetraceratium gen. nov.

This genus is near to *Neocerus* Mel., but it is easily recognized by the deep angular emargination of the base of the frons, and a corresponding emargination of the anterior margin of the pronotum.

The cells of the costal area and the apical cells form a continuous margin from the base of the costa to the apex of the clavus; Sc, R, M, and Cu arising from basal cell, the forks of R, M, and Cu about equal distance from base; M branching out and its apical cells occupying the greater portion of apical margin; the branches of Cu pressed together at apex of clavus; claval veins forking near apex and entering commissure. The apex of vertex and base of frons deeply angularly emarginate, the vertex excavate, its base hidden by the pronotum; the width at base of frons, from tip to tip of the horns, double the width at apex, sides slightly sinuous, no carinae on frons, the edges slightly raised; clypeal suture obscure, clypeus without carinae. Basal segment of antennae as broad as long, second segment about twice as long as broad; eyes round without

* Wytsmann's *Genera Insectorum*, fascicule 182 (1923), p. 4.

antennal sinus, ocelli distinct. Pronotum excavate in middle, anteriorly produced into two processes corresponding closely to the two at apex of vertex, a small, raised process behind eyes, base of pronotum widely angularly emarginate; mesonotum about as long as wide, without carinae, hind tibiae with one spine near apex.

According to Melichar's latest arrangement of the Flatidae, this genus would form a new subtribe of the Nephesini. His subtribe Cryptoflatini should be the typical subtribe, as it contains *Nephesa* Amy. Serv.

Type *T. wolcotti*.

Tetraceratium wolcotti sp. n. Plate XII, Figs. 6, a.

Female. Length, 7 mm.; tegmen, 8 mm.

Stramineous slightly tinged with green, in life probably green; veins of tegmen greenish; wings hyaline, opaquely white with waxy secretion, veins white.

Anal segment large, flat, thin, in outline oval, anus near apex; posterior styles of ovipositor small, longer than wide, apex slightly pointed; anterior styles triangular, small; posterior margin of pregenital plate slightly angular.

One female from Haina, Santo Domingo, R. D. (*G. N. Wolcott*, 1920, No. 31).

Type in U. S. National Museum, Washington.

Ormenis Stal.

In his recent work, Melichar has divided the old genus *Ormenis* into several genera. This would be good if his characters were more definite. In his table of the Cryptoflatini it is fairly difficult to follow certain characters; as an instance, the one or two transverse lines formed by the apical and subapical cross-veins are not always easy to recognize, especially the subapical line, which is often irregular, and the cross-veins indistinct. In the present paper the writer has retained the old generic conception and added remarks as to where they appear to come in Melichar's new classification. He believes that a better system for both the Ricaniidae and Flatidae could be arrived at if more advantage was taken of the venation of tegmina.

Ormenis quadripunctata (Fabr.).

There are six specimens from Porto Rico which agree with the descriptions of this species. There is no subapical transverse line.

Ormenis infuscata (Stal.).

There are two specimens from Vega Baja, P. R. (*R. T. Cotton*, 8, 4, 16, Acc. No. 518-16), which the writer considers to be this species, judging by descriptions. The subapical transverse line could be considered as present, as it is fairly well developed, the cross-veins being fairly regular. If we consider this as a line, then it would be an undescribed genus near to *Acrophaca* Mel. The frons is wider than long, and there are two spines on the hind tibiae.

Ormenis marginata (Brunnich).

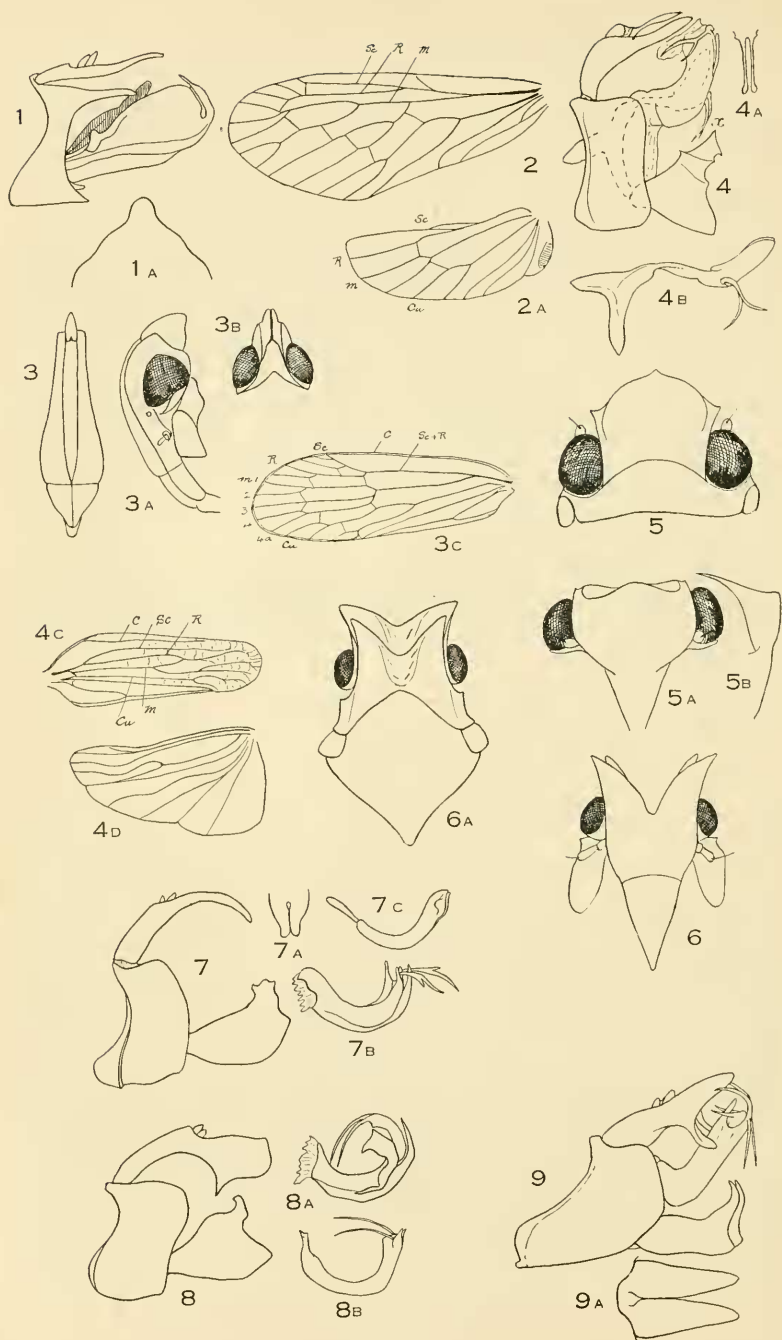
This is made by Melichar into a monotypic genus *Petrusina* in which there are two transverse lines in apical area, but in the specimens from Porto Rico the cross-veins are somewhat irregular and obscure.

Ormenis pseudomarginata sp. n. Plate XII, Figs. 7, a, b, c.

Male. Length, 2.7 mm.; tegmen, 4 mm.

Frons broader than long (1.3 to 1), median carina distinct on basal half, absent from apical half, lateral carinae only indicated at base, lateral margins carinate; no carinae on clypeus; vertex very short, mostly covered by pronotum; width of head equal to, or wider than, width of thorax, no carinae on mesonotum or only a slight indication at the base of median carina. Hind tibia with only one spine. Costal area distinct with transverse veins, and slightly granulate. Sc very strong, simple to apex; R arising from M near its base and forking about one-third from base of tegmen; Mf level with Rf, Cuf slightly basad of former two; granulations over the base of R and M obscure their junction. Nodal line slightly arcuate and formed by some irregular cross-veins and a slight depressed line across tegmen from node to apex of clavus; apical line fairly even and distinct; claval vein forking near apex, clavus strongly granulate.

Pronotum and mesonotum black or very dark fuscous brown, frons lighter brown, shading out to nearly yellow on sides, clypeus light fuscous; genae, antennae and eyes yellow; front and middle legs yellow, hind legs light brown, yellowish over apical half of tibiae and tarsi. Abdomen, pygofer and styles dark brown. Tegmina black or very dark fuscous brown, a white line along costal margin, narrowest at base where it only



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covers about one-third of the width of costal area, broadening to apex where it covers the whole costal area; veins slightly lighter along nodal line. Wings fuscous with dark veins.

The perianthrium is tubular with a pair of chitinous, bifurcate spines at apex; the penis is tubular with a chitinous rim at apex, but no process. The apex of anal segment is cleft for some little distance. The details of the genitalia are best understood by the figures.

Described from one male from Porto Rico (*R. T. Cotton*, January, 1917, Acc. No. 127-17), and one male from Lares P. R. (*J. More*, December, 1920, Acc. No. 150-20).

Type in H. S. P. A. Experiment Station, Honolulu, T. H., No. 1140; paratype in U. S. National Museum, Washington.

In Melichar's latest table this would run down to *Petrusina* Mel.

Petrusa pygmaea (Fabr.). Plate XII, Figs. 8, a, b.

The specimens the writer has before him from Porto Rico run down to *Petrusa* Stal in Melichar's latest table, and agree with his specific description in his monograph; they also agree with Stal's original specific description. Stal states that this genus has two transverse lines in the apical area of the tegmina.

PLATE XII.

1. *Cedusa wolcotti*, lateral view male genitalia; *a*, female pregenital plate (seventh abdominal sternite).
2. *Dysimia maculata*, left tegmen; *a*, left wing.
3. *Parahydricna hyalina*, front view frons and elyptens; *a*, lateral view head and pronotum; *b*, dorsal view head; *c*, left tegmen.
4. *Colpoptera brunneus*, lateral view male genitalia; *a*, emargination at apex of perianthrium with median process; *b*, lateral view penis and apodeme; *c*, right tegmen; *d*, left wing.
5. *Acanalonia brevifrons*, dorsal view head and pronotum; *a*, front view frons and elyptens; *b*, profile vertex and frons.
6. *Tetracratium wolcotti*, front view head; *a*, dorsal view head, pronotum and mesonotum.
7. *Ormenis pseudomarginata*, lateral view male genitalia without aedeagus; *a*, apex of anal segment; *b*, lateral view perianthrium; *c*, lateral view penis.
8. *Petrusa pygmaea*, lateral view male genitalia without aedeagus; *a*, lateral view perianthrium; *b*, lateral view penis.
9. *Flatoides brunneus*, lateral view male genitalia; *a*, ventral view genital styles.

whereas Melichar places it in the group with only one. The specimens have a distinct regular apical line, but only a very slight subapical line. The male genitalia are figured, and it is hoped that those having access to the type, or who have topotypes, will compare them and publish the results.

Flatoides brunneus sp. n. Plate XII, Figs. 9, a.

Male. Length, 3.5 mm.; tegmen, 4 mm.

In size, venation and general build this species is near to *F. punctata* (Walk.), but the vertex is slightly shorter and its apex a little more obtuse. The hind tibiae have three spines, one on basal and two on apical half. The costal area is wide at base and gradually narrows to apex, Sc arises from basal cell, R+M form a small stalk at base, Cu arises from basal cell, but becomes crowded out by M towards the apex of clavus; claval veins furcate near apex, enters the apex or the commissure near apex, clavus closed.

Dark brown; slightly darker over base of frons and mesonotum. Tegmina light brown, veins same color as membrane; wings very light brown with darker veins. A few very small dark specks on costal area and on corium.

The anal segment large with anus in middle, basal half tubular, slightly constricted at anus, apical half flattened horizontally with the apical margins slightly apical of anus produced into a large process on each side, with a smaller one arising between them from the ventral middle line of anal segment, apex in dorsal view rounded with a slight emargination in middle. Genital styles in ventral view subtriangular, longer than broad, touching on middle line of basal half; in lateral view the outer apical angle produced into a broad, curved spine with acute apex. Periandrium tubular with two pairs of spines at the ventral apical margin, one pair curved dorsad and the other pointing basad. The penis tubular on basal half and then bifurcate with two spines at apex.

Haina, Santo Domingo, R. D. (*G. N. Wolcott*, 1920), one male.

Type in U. S. National Museum, Washington.

The specimen of *F. punctata*, with which it has been compared, is from Florida, and was identified by Van Duzee. It appears to agree with descriptions of that species, but Melichar places it in *Cyrtoda*. If Van Duzee's and the author's identification be correct, then Melichar is wrong. The genitalia of *brunneus* and *punctata* are very close to one another and differ considerably from those of *Uxantes*. The three spines on the hind tibiae places this in the subgenus *Atracodes* Mel., but the number of these spines do not give a natural grouping.